ECPGR Grant Scheme Activity
UMORPHEAS - Updated MORPHological dEscriptors for Avena Species

Progress report 2026

The Project UMORPHEAS was officially initiated in March 2022, through a teleconference kick-off meeting. The delay was due to the pandemic. This project aims to produce a new, accurate and updated morphological descriptor guide for oats that can reliably be used by non-specialists to ensure uniform scoring of phenotypes. Furthermore, since the same germplasm is planted in five locations across Europe, stable and environmentally influenced descriptors will be identified and mentioned. The selected morphological characters included, with a simplified but informative scoring system, will help researchers use a uniform and comprehensive structure. The available literature was taken into consideration (1, 2, 3, 4, 5).

A total of 89 varieties were selected based on their diverse morphological characteristics, including cv Canyon as a reference, since it is widely used as reference variety for a number of morphological characteristics (growth habit, stem hairiness, glume glaucosity, etc). Seeds were multiplied and distributed by the Slovakian partner Peter Hozlar, to all partners in February-March 2022. During the following years, field trials were established in all partners' countries (United Kingdom, Germany, Slovakia, Cyprus) and Greece (growing season 2024-2025). Observations related to key morphological characteristics were scored and recorded. Observations and scorings were agreed to be from a group of ten plants per entry. Visual observations (scores) were based on partners' judgment. Since photos of the recorded characteristics at the corresponding growth stage (following the decimal code for the growth stages of cereals) were taken by all partners, comparisons among scores from different countries are performed based on photos.

Literature
1. United Kingdom Variety Lists / Plant Breeders' Rights Technical Protocol for Official Examination of Distinctness, Uniformity and Stability (DUS) Oats. December 2022
2. UPOV Oats. October 2018
3. Oat Descriptors. IBPGR 1985
4. Diederichsen Axel. 2008. Assessments of genetic diversity within a world collection of cultivated hexaploidy oat (*Avena sativa* L.) based on qualitative morphological characters. Genet. Resour. Crop Evol. 55:419-440
5. Kumari T., Jindal Y., and Kumari P. 2018. Characterization of oat (*Avena sp*) genotypes for morphological traits. Forage Res. 43(4):261-265